

TSR User Manual

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1 Introduction

1.1 Purpose

This document is used to introduce how to use the software resource repository of Trustie (TSR). The repository administrator, repository users or other people interested to TSR could understand how to manage and use TSR by this document.

1.2 Background

Software resources include all software products involved in software development, such as software code, documentation, data, and so on. Reuse these software resources will improve the software production efficiency and the software quality. A reusable software resource is called software asset. The practice shows that the software reuse can be effectively improved when there are efficiency software asset. At the same time, the quantity and quality of software assets are the key factors to a successful software reuse. Therefore, software resources management is the key process of software reuse, the software resources management system is called software resource, too. In detail, a software resource is an infrastructure of software reuse that provides software resource management. The main function of software resource include: collect, describe, classify and store software resource to help users search and use these software resources in management, so as to support both reuse-oriented software development and reuse-base software development process.

1.3 Terminology

- **Software Resource:** Software Resource is the reusable software products in software life cycle, it include software requirements, software design, code, test cases, software documentation, and so on. Software Resource can be used to create new software and related products.
- **Software Component:** Software Component is the software entity that has

relatively independent functions, can be clearly identified, gets interfaces specified by contract and depends on particular context. It can be deployed independently and almost provided by a third party.

- Software user composes software system using specific component entities. In general, the component entity is a software language code or a binary code; the component entity is embedded in the application system for end users. We call this type of component as entity component.

- **Software Service:** Software Service is the software resource implemented by distributed component technology, it could not only be composed by its services interface but also run independently. The software user interact with the software service by service access address when they use the application system. We call such software resource as service component
- **User:** An entity that can access the data or other data resources in computer system. Users in the TSR can be classified into individual users and enterprise users. A user should be registered as individual user before use the TSR, an enterprise should be registered as enterprise users before use the TSR.
- **RAS:** RAS (Reusable Asset Specification, OMG Standard, November 2005). This Specification provides a set of guidelines and recommendations about the structure, content, and descriptions of reusable software assets.
- **Software Quality Information:** The Information is used to describe the quality of software resources and evaluate the quality of software resources by evaluation model, in order to classify trustworthy software resource and help users choose software resources.
 - **Quality Description Model:** The model is used to describe the software quality information, it mainly includes the following items: name, description, validity, the type of software resource, quality attributes (including attribute name, description, father attribute).
- **Quality Evaluation:** The software quality information of software resource based on specific quality description model. Besides the items in quality description model, it also includes such items as resource ID, publishers, description, publish time, update time, etc.
- **Meta-Feedback Template:** Meta-Feedback Template is base of quantitative feedback information, it is used to define the feedback template and quantify the content of feedback information.
 - **Feedback Template:** Feedback Template is implemented base on meta-feedback template, it define the detail dimension and attributes in the meta-feedback template corresponding to specific application area.
 - **Dimension and Attribute:** Every feedback template have a tree structure, where the leaf nodes is called attribute and the intermediate nodes that has children nodes is called dimension. Attribute is the atomic structure of the feedback template.
 - **Feedback Information:** The quantitative information that is fed back for software resource or software resource repository using specific feedback template.

- **Trustworthiness Level:** The goal of trustworthiness classification is to measure the trustworthiness of software artifacts by classification, and to help users select proper artifacts on demand. The trustworthiness levels are defined according to the degree of how the software satisfies users' expectation of the trustworthiness properties.
 - **Level 0 – Unknown**

No trustworthiness evidence is available. Whether the software can satisfy users' expectation of the trustworthiness properties or not cannot be determined. The trustworthiness level is defined as Unknown.
 - **Level 1 – Available**

The software artifact is available, and it can run normally as it is described by the provider, which means this artifact can implicitly satisfy users' basic expectation. The trustworthiness level is defined as Available.
 - **Level 2 – Verifiable**

Level 2 is based on Level 1. If the software artifact provider can provide software trustworthiness declaration according to the published software trustworthiness properties publication specification, and the declaration can be verified by software trustworthiness analysis tools, testing tools, verification tools or other trustworthiness evaluation methods, which means this software artifact can satisfy users' general expectation of the software trustworthiness properties and the properties have been verified, the trustworthiness level is defined as Verifiable.
 - **Level 3 – Practical**

Level 3 is based on Level 2. If the software has been used in the related domain, and successful use case can be verified, which implicitly means that the software can satisfy users' general expectation of the software trustworthiness properties and the use case can be verified, the trustworthiness level is defined as Practical.
 - **Level 4 – Evaluable**

Level 4 is based on Level 3. If the software trustworthiness has been evaluated by authoritative software trustworthiness classification organizations according to specific published software trustworthiness classification specification, which mean this software can satisfy users' high expectation of the software trustworthiness properties and the properties have been evaluated by the authority, the trustworthiness level is defined as Evaluable.
 - **Level 5 – Provable**

Level 5 is based on Level 4. If all the trustworthiness properties have been strictly proved, the trustworthiness level is defined as Provable, which is the highest trustworthiness level.

1.4 References

Some specifications and documentations, which are useful for readers to understand this manual, are included in this section.

1. National High-Technology Research and Development Project(863 Project) application: Trustworthy Software Tools and Integration Environment
2. National 863 Project *Trustworthy Software Tools and Integration Environment* technical documentation *Software Trustworthiness Classification Specification*
3. Reusable Asset Specification OMG Available Specification Version 2.2
4. National High-Technology Research and Development Project (863 Project) research project contract. Research project name: Internet based and component centered software development platform. Research project NO.: 2001AA113070. Duration of the project: 10/2001~10/2002.
5. National High-Technology Research and Development Project (863 Project) research project contract. Research project name: Internet based and component centered software development platform. Research project NO.: 2001AA113070. Duration of the project: 10/2002~12/2004.
6. W3C specifications, documentations and drafts:
 - a) XML 1.0, <http://www.w3.org/XML/>
 - b) XML Schema, <http://www.w3.org/XML/Schema>
 - c) XML namespaces, <http://www.w3.org/TR/1999/REC-xml-names-19990114/>
 - d) SOAP 1.1, <http://www.w3.org/TR/soap/>

2 Brief Introduction of Trustie Software resource Repository

The goal of Trustie Software resource Repository (TSR) is to share software resource. TSR collects, organizes and manages many types of software resources from the Internet. Trustworthiness evaluation techniques and trustworthiness classification mechanisms are supported in TSR. TSR adopts high trustworthy and open architecture to inter-connect distributed multi repositories.

3 Environment requirements

3.1 Server side environment requirements

3.1.1 Hardware requirements

- Server
 - Hard disk space: database space 1G; component space depends on user's requirement, and more than 5G by default is proposed.
 - Memory space: no less than 1G, and more than 2G is proposed.

3.1.2 Software requirements

- Microsoft Windows 2000 Server or later
- Mysql 5.0

- Jonas5.1.0

3.2 Client side environment requirements

3.2.1 Hardware requirements

Client: Intel 586 or higher performance computer
Memory space: not less than 128M

3.2.2 Software requirements

Microsoft IE 6.0 or later, or other web browsers.

4 TSR User guide

4.1 sign up, sign in, modify information and log out

Before visiting all functions of this system, user has to sign up to become a valid user and sign in successfully.

4.1.1 sign up

There are two sign up buttons in the middle of left side on home page. One is for personal users, another is for corporate users. Please pay attention to the red circle parts in the following figure. The left one is the link to sign up as a personal user, the right one is the link to sign up as a corporate user.



Figure 1 TSR homepage

Personal users have to fill in following information after entering the personal sign up page.

Figure 2 personal sign up page

- UserID: UserID is used for sign in, and the length should be between 5-8 characters. UserID is composed by letters, numbers,"*"and "_", it's required to fill.
- Password and Confirm Password: For security, password length should not be shorter than 5 characters, it's required to fill.
- Get password question and Get password answer: Used for showing hints when the user forgets password, it's not required.
- User real name: Used for identification when system administrator contacts with the user. Please fill in correctly, it's required to fill.
- E-mail: Used for contacting with the user, it's required to fill.
- Telephone Number: it's not required.
- Contact: it's not required.
- Fax: it's not required.

Click “submit” when the user completes. He/she will sign up successfully if your information passes validation. Click “reset” to clear up all inputs.

Corporate users have to fill in following information after entering the corporate sign up page.

Figure 3 corporate sign up page

- UserID: UserID is used for sign in, and the length should be between 5-8 characters. UserID is composed by letters, numbers, "*" and "_", it's required to fill.
- Password and Confirm Password: For security, password length should not be shorter than 5 characters, it's required to fill.
- Get password question and Get password answer: Used for showing hints when the user forgets password, it's not required.
- Corporate Name: Used for the identification of corporate when system administrator contacts with the user. Please fill in correctly, it's required to fill.
- Corporate Contact Name: Used for the identification of corporate contact person when system administrator contacts with the user. Please fill in correctly, it's required to fill.
- E-mail: Used for contacting with the user, it's required to fill.
- Telephone Number: it's not required.
- Contact: it's not required.
- Fax: it's not required.

Click "submit" when the user completes. He/she will sign up successfully if his/her information passes validation. Click "reset" to clear up all inputs.

4.1.2 Sign in

Users can use all functions all this system after signing up successfully. Users can sign in by inputting correct userID and password on the home page.

4.1.3 Modify information

The user can modify his/her password and information after signing in

successfully.

Change password: the user needs to input new password. This new password will become valid after logging out.

Modify information: the user can modify “Get password question”, “Get password answer”, “User real name”, “E-mail”, “Telephone Number”, “Contact” and “Fax”.

4.1.4 Log out

The user who has signed in successfully should log out after finishing visiting. There is a “log out” button in the middle of left side on homepage or in the top right position of other pages.

4.1.5 Forget password

If the user forgets his/her password, he/she can get into “forget password” page from homepage by clicking the link “Forget Your Password?” which is under the sign in form. The user has to input his/her UserID(User real name), E-mail and then submit. System will validate:

1. Whether the UserID has been signed up or not;
2. Whether the E-mail is the same as the email in user’s information

After passing the validation, the user will receive an email including the password related to the UserID in his/her E-mail box.

Figure 4 forget password page

4.2 Publish Software Resources

Users can publish software resources after signing in. If a user who hasn’t signed

in clicks ‘Publish’ option on the navigation bar, he will be automatically redirected to the login page.



Figure 5. Publish option on the navigation bar

4.2.1 Step 1: Fill in basic information

The following information is needed as basic information for a software resource: Items with * is necessary, the others are optional.

Figure 6. Fill in basic information

- Name: name is needed from every software resource, it cannot be empty. Chinese or English are both accepted.
- Type: TSRR supports five types of software resources: Component, Service, Tool, Architecture, Other. ‘Component’ is default value. You are only required to provide access url of the resource at the second step if you choose type ‘service’; otherwise artifacts of the software resource are needed at the second step.
- Description: Overview introduction to the software resource.
- Tag: Tags used to label the software resource. Tags as separated by comma ‘,’.
- Classification term: Classification information of the software resources. Select classification terms on the right classification tree. Multiple terms are allowed.

- Software license: License which should be complied with during software resource distribution. You can select it from license list, or fill in your own license. Please refer to Appendix A for license list.
- Fee: Three options: open source, free ware, or commercial.
- Price: Price of the software resource, in U.S. dollar.
- Reference: Information source where reference information about the software resource can be found.
- Limitation: restrictions in using resource, including algorithm, compiler, portability, environment etc.
- Target environment: the computer system, operation system and compiler, to which resource motivates
- Version: version of the software resource
- Authentication method: Describe the method of evaluation or certification of the software resource, including the result of evaluation or certification, the date of certification, the person of certification etc.

Click 'next' button to the second step of publishing after filling in basic information.

4.2.2 Upload resource entity

In this step, you can upload artifacts produced during each stage in life cycle of the resource, including:

- Requirement artifacts: Artifacts produced during requirement analysis stage, e.g. use case diagrams, requirement analysis documents.
- Design artifacts: Artifacts produced during software design stage, e.g. class diagrams, design documents.
- Implementation artifacts: Artifacts produced during implementation stage, e.g. source code files, binary files. For a software resource of type 'Service', URL of its WSDL document is needed (necessary) in this category.
- Testing artifacts: Artifacts produced during testing stage, e.g. test cases, test report documents.
- Usage artifacts: Artifacts about usage of the software resource, e.g. user manual.

You can click "Continue to add..." option to upload multiple files for each category.

upload resource entity information		
You can submit all artifacts in every stage through software life cycle(WSDL URL is required for a service; at least one kind of the following five artifacts is required for other resource types):		
upload requirement file	G:\Program Files\SogouExplorer\changelog.txt 浏览... G:\Program Files\SogouExplorer\browser.conf 浏览... 删除 Continue to add requirement documents...	You can click" Continue" to diagram, requirement spec
upload design file	G:\Program Files\SogouExplorer\LICENSE 浏览... 删除 Continue to add design related files...	You can click" Continue" A specification etc.
upload implementation files	浏览... Continue to add implementation files...	You can click" Continue" to etc.
upload test file	浏览... Continue to add testing files...	You can click" Continue" to report", etc.
upload resource help file	浏览... Continue to add help files...	You can click" Continue" to
		back next submit

Figure 7. Upload entity files for resources of type 'Component' or 'Tool' or 'Architecture', or 'Other'

publish software resource, you need: 1 fill in basic information 2 upload resource entity 3 upload asset evidence 4 fill in

upload resource entity information		
You can submit all artifacts in every stage through software life cycle(WSDL URL is required for a service; at least one kind of the following five artifacts is required for o		
upload requirement file	浏览... Continue to add requirement documents...	
upload design file	浏览... Continue to add design related files...	
WSDL address of Web Service	Items with *must fill is required	
upload test file	浏览... Continue to add testing files...	
upload resource help file	浏览... Continue to add help files...	
		back

Figure 8. Upload entity files for resources of type 'Service'

After selecting artifacts, click 'next' button to upload selected artifacts to server side, and then to step 3. You can click 'back' button to go back to step 1. You can also click 'submit' to submit the software resource to TSRR without filling information in step 3.

4.2.3 Upload asset evidence

In this step, you can upload asset evidence of the software resource. The software asset evidence here is referred to be measurements, documents or other information that can reflect certain trust attributes of software assets.

Asset evidence template is basically an Excel file. If extra files are referenced by the template, use hyper links in Excel (NOTE: the referenced file should be in the same directory with the template). You can refer to the template file provided on the page for reference.

Evidence files for demonstration are available on the page.

Click 'next' button to step 4. Click 'back' to go back to step 2. You can also click 'submit' button to submit the software resource to TSRR directly without filling in quality information in step 4.

Figure 9. Upload asset evidence

4.2.4 Submit Quality Information

This is the last step of the software resource publication in which users are requested to submit quality information of the published software resource. Quality information includes:

- **Effectiveness:** The capability of the software product to enable users to achieve specified goals with accuracy and completeness in a specified context of use.
- **Satisfaction:** The capability of the software product to satisfy users in a specified context of use.
- **Safety:** The capability of the software product to achieve acceptable levels of risk of harm to people, business, software, property or the environment in a specified context of use.
- **Productivity:** The capability of the software product to enable users to expend appropriate amounts of resources in relation to the effectiveness achieved in a specified context of use.
- **Functionality, including the following 4 sub-characteristics:**
 - **Security:** The capability of the software product to protect information and data so that unauthorized persons or systems cannot read or modify them and authorized persons or systems are not denied access to them.
 - **Suitability:** The capability of the software product to provide an appropriate set of functions for specified tasks and user objectives.
 - **Accuracy:** The capability of the software product to provide the right or agreed results or effects with the needed degree of precision.
 - **Interoperability:** The capability of the software product to interact with one or more specified systems.
- **Reliability, including the following 3 sub-characteristics:**
 - **Recoverability:** The capability of the software product to re-establish a specified level of performance and recover the data directly affected in the case of a failure.
 - **Maturity:** The capability of the software product to avoid failure as a result of faults in the software.
 - **Fault tolerance:** The capability of the software product to maintain a specified level of performance in cases of software faults or of

infringement of its specified interface.

- Efficiency, including the following 2 sub-characteristics:
 - Time behavior: The capability of the software product to provide appropriate response and processing times and throughput rates when performing its function, under stated conditions.
 - Resource utilization: The capability of the software product to use appropriate amounts and types of resources when the software performs its function under stated conditions.
- Usability, including the following 4 sub-characteristics:
 - Attractiveness: The capability of the software product to be attractive to the user.
 - Learnability: The capability of the software product to enable the user to learn its application.
 - Understandability: The capability of the software product to enable the user to understand whether the software is suitable, and how it can be used for particular tasks and conditions of use.
 - Operability: The capability of the software product to enable the user to operate and control it.
- Maintainability, including the following 4 sub-characteristics:
 - Changeability: The capability of the software product to enable a specified modification to be implemented.
 - Testability: The capability of the software product to enable modified software to be validated.
 - Stability: The capability of the software product to avoid unexpected effects from modifications of the software.
 - Analyzability: The capability of the software product to be diagnosed for deficiencies or causes of failures in the software, or for the parts to be modified to be identified.
- Portability, including the following 4 sub-characteristics:
 - Adaptability: The capability of the software product to be adapted for different specified environments without applying actions or means other than those provided for this purpose for the software considered.
 - Replaceability: The capability of the software product to be used in place of another specified software product for the same purpose in the same environment.
 - Co-existence: The capability of the software product to co-exist with other independent software in a common environment sharing common resources.
 - Installability: The capability of the software product to be installed in a specified environment.

publish software resource, you need: 1 fill in basic information 2 upload resource entity 3 upload asset evidence 4 填写质量信息

Quality	
有效性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
生产率	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
安全性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
满意度	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
维护性	易分析性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易改变性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	稳定性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易测试性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
可移植性	适应性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易安装性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	共存性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易替换性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
功能性	适合性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	准确性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	互操作性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	保密安全性 <input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级

Figure 10 Submitting quality information

Press "Submit" to finish the publication process after filling the quality information. Users can also click the "Previous" button to return to the 3rd step.

Detailed Information of the software resource published just now will be displayed after users finish the publication process, as shown in Fig. 11.

Current Location: view resource message

basic information		classification tree:	
Keywords	abc_supercal	Trustiness Level	未评定
Type	Component	publisher	supercal
date of being published	2010-09-28 13:33:02.972	updated time	2010-09-28 13:33:05.213
Abstract	abc_supercal		
fee	commercial	Price	
Version		Reference	
Target Environment		limitation	
access address			
Authentication method			
Software License			
UUID	DCF77CF0-CAC1-11DF-968D-9B97C32E7A5D		
Entity information			
Binding Template1:	DE422560-CAC1-11DF-968D-F5A008DEE1E3	Access Address	abc_supercal20100928013304.ras (download requires login)
Tag			
add new Tag			
published quality information by publisher			
sequence number	valuator	publish date	Operation

the selected classification terms is the classification of the software resource

- Application Domain
- Application Environment
- Functionality
- Level
- Representation

Figure 11. Detailed information page of software resource

4.3 Modify the Information of Software Resource

If any information of the software resource has been changed after publication, users can update the changed information to the repository by click the "Modify" link

located at the bottom of the detailed information page.

The modification process is similar to the publication one, including 4 steps: 1)Modify the basic information, 2)Modify the entity files, 3)modify the evidence for trustworthiness evaluation and 4)Modify the quality information.

- The modification page of the basic information is shown in Fig. 12. Former basic information of the software resource is automatic filled and all these information, including the classification tree at the right side, can be re-edited.

Figure 12. Modifying the basic information of software resource

- Press "Next" to update the entity files of the software resource. In the following page, all the entity files are displayed in categories at the left side. Users can delete entity files by selecting the corresponding checkbox. As shown in Fig. 13, users can also add new entity files of different type (such as requirement files, or development files etc) by clicking the corresponding "Browse..." Button at the right side to upload them.

publish software resource, you need: 1 fill in basic information 2 **upload resource entity** 3 upload asset evidence 4 fill in quality information

upload resource entity information

Please select the files you intend to cancel:

These are the existing files of this resource, select the checkbox if you intend to cancel the corresponding file:

- ☐ artifact
 - ☐ requirement
 - ☐ ISO9126.pdf

You can submit all artifacts in every stage through software life cycle(WSDL URL is required for a service; at least one kind of the following five artifacts is required for other resource types):

upload requirement file: Continue to add requirement documents... [浏览...](#)

upload design file: Continue to add design related files... [浏览...](#)

upload implementation files: Continue to add implementation files... [浏览...](#)

upload test file: Continue to add testing files... [浏览...](#)

upload resource help file: Continue to add help files... [浏览...](#)

[back](#) [next](#) [submit](#)

Figure 13. Modifying the entity files of software resource

- Click "Next" to update the evidence information. In this step, users can update the evidence information by re-uploading the evidence package. If no modification has been made, go next step by clicking the "Next" button or complete the modification process by clicking the "Submit" button. The modification page of the evidence information is shown below in Fig. 11.3.

publish software resource, you need: 1 fill in basic information 2 upload resource entity 3 **upload asset evidence** 4 fill in quality information

upload asset evidence

The software asset evidence here is referred to be measurements, documents or other information that can reflect certain trust attributes of software assets. asset evidence template is basically an Excel file. if extra files is referenced by the template, use hyper links in Excel (NOTE: the referenced file should be in the same directory with the template refer to the asset evidence template for further information. If you still confused about filling the asset evidence template, an example is also provided here [Example for evidence template](#). asset evidence package should be a zip file. please compress all the needed files into a zip package, and upload it

please upload the asset evidence package: [浏览...](#)

[back](#) [next](#) [submit](#)

Figure 14. Modifying the evidence information of software resource

- Press "Next" to update the quality information. Users will enter the quality information modification page as shown in Fig. 11.4.

publish software resource, you need: 1 fill in basic information 2 upload resource entity 3 upload asset evidence 4 填写质量信息

Quality		
有效性		<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
生产率		<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
安全性		<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
满意度		<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
维护性	易分析性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易改变性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	稳定性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易测试性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
可移植性	适应性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易安装性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	共存性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易替换性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
功能性	适合性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	准确性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	互操作性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	保密安全性	<input checked="" type="radio"/> 暂无信息 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级

Figure 15. Modifying the quality information of software resource

- By clicking the "Submit" button, the updated information of the software resource will be stored. System will automatically jump to the detailed information page with latest information displayed.

4.4 Retrieve Software Resource

The main function of retrieve is to help users search, browse, select and download the software resources on demand. There are two kinds of users who have the right to retrieve software resource in Software Resource Repository. One is guest, the other is registered user. Guests are able to retrieve, but not to download software entities. Only after login, one can download entities of software resources.

The retrieve includes simple retrieve, advanced retrieve, retrieve based on tags and retrieve based on classification.

4.4.1 Simple Retrieve

Simple retrieve is the search tool in the middle of homepage, as shown in figure 7.



Figure 16. Simple retrieve interface in homepage

Keywords: keywords to be retrieved, such as resource name.

Type: software resource type, including component, web service, architecture, tool and other.

4.4.2 Advanced Retrieve

Click “Retrieve”, enter advanced retrieve page, as shown in figure 15.

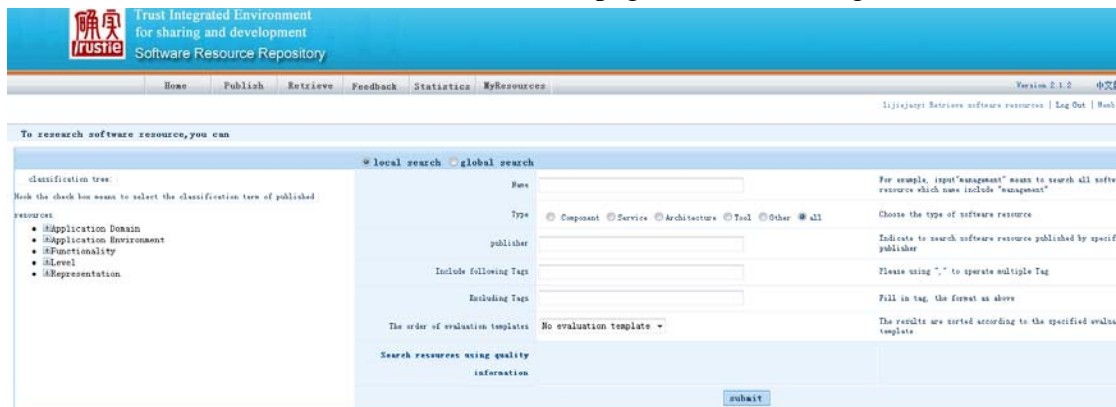


Figure 17. Advanced retrieve page of software resource repository

User should fill in attributes of advanced retrieve, including:

- Name: name or part name of the software resource which would be retrieved. It can be empty, which means no restriction to software resource name.
- Type: software resource type, including component, web service, architecture, tool and other. The default type is component.
- Publisher: publisher of software resources. It can be empty, which means no restriction to software resource publisher.
- Included tags: tags which are included in software resources. Separate different tags with comma. It can be empty, which means no restriction to software resource including tags.
- Excluded tags: tags which are excluded in software resources. Separate different tags with comma. It can be empty, which means no restriction to software resource excluding tags.

Trust Integrated Environment
for sharing and development
Software Resource Repository

Home Publish Retrieve Feedback Statistics MyResources

User Login →

UserID: lijiejacy
 Account Information
 Change password Log Out

Keywords search global search advanced

☒ Component ☐ Service ☐ Architecture ☐ Tool ☐ Other ☐ all

Results

Page1 Total13page Total64results Home Next end page jump to page GO

Taxonomy

- Application Domain
- Application Environment
- Functionality
- Level
- Representation

Resource Name	downloads	publish time
XWeb1003	0	2008-10-24 16:49:40.0
Overview: XWeb1003 is an XML/SOAP based Web Service which provides integration and management of the Uniform Residential Mortgage Loan Application (Form 1003) to client applications.		
XWebBlog	0	2008-10-24 16:48:40.0
Overview: XWebBlog is an XML/SOAP based Web Service which provides integration and management of a Weblog (Blog) to client applications.		
bookstoreService	0	2008-10-24 16:47:59.0
Overview: Example of a bookstore webservice (author, prize, title, availability).		
statedemo	0	2008-10-24 16:47:56.0
Overview: Webservice example for state management.		
XWebSurvey	0	2008-10-24 16:46:49.0
Overview: XWebSurvey is an XML/SOAP based Web Service which provides integration and management of Surveys (Polls) to client applications. For complete documentation please visit http://www.xwebservices.com/Web_Services/XWebSurvey/ .		

Figure 19. Results list of retrieve based on tags

4.4.4 Retrieve Based on Classification

Software resource repository provides classification for organizing software resources, and supports retrieve based on classification. Classification can be thought as a tree without root value. The direct children of root are called facets. The children of facets are **term**(术语)s. Every facet is a space consisted of terms. When publishing a software resource, the publisher can select some terms from the classification. Then the resource will be classified into the selected terms. One can click the node to expand the facets and terms. By clicking one term, one can retrieve based on classification. Afterwards, the software resources classified into that term will be returned. As shown in figure 18.



Figure 20. Retrieve based on classification interface

4.5 Feedback

Feedback is users' opinion and evaluation on the software resources in the software resource repository.

4.5.1 Feedback Template

As mentioned in advanced software resource retrieve (4. 4. 2), the retrieve result can be ranked according to feedback template. In other words, a feedback template can be used to rank the candidate software resource in retrieve result.

In the software resource repository, users could customize feedback template based on their profile.

At the bottom of resource detail page, click "add new quality feedback" button and head into the page shown as the figure below.

当前位置 >> 添加资源库信息

反馈信息 (在需要提交级别 (1~5级) 的属性中, 级别越高代表其对应的属性越好)

总体满意度	<input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
总体评价	<input type="text"/>
有效性	<input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
生产率	<input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
资金性	<input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
满意度	<input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
维护性	易分析性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易改变性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	稳定性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易测试性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
可移植性	适应性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易安装性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	兼容性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	易替换性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
功能性	适用性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	准确性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级
	互操作性 <input checked="" type="radio"/> 无反馈 <input type="radio"/> 1级 <input type="radio"/> 2级 <input type="radio"/> 3级 <input type="radio"/> 4级 <input type="radio"/> 5级

完成

Figure 21. Feedback Template's Detail Information (中文图)

4.6 Statistics

Statistics provides the usage information of software repository for users. There are two majors statistics, which are overall information of the system and the software resource repository profile.

4.6.1 System Overall Information

The software resource repository makes statistics of the number of resources, the number of users, publish information of software resources and information of visiting the repository. The overall information page contains user number and resource number of the system.

Click "statistics" button, then users could head into the system's overall information page. There are two aspects information, resource repository overview information and updated information.



Figure 22. Overall Information of Software Resource Repository

Users can look over seven types statistic information in the system overall information page.

- User number: the number of registered users in software resource repository.
- Resource number: the number of software resources in the repository.
- Reuse number: the number of download times of RAS package.
- New component number: new added component number in the last 3, 7 or 30 days
- New service number: new added service number in the last 3, 7 or 30 days
- New tool number: new added tool number in the last 3, 7 and 30 days
- New architecture number: new added architecture number in the last 3, 7 and 30 days.
- Number of others: other added resource number in the last 3, 7 and 30 days.

In the updated information table, user can select “3 days”, “7 days” or “30 days” to look up for the number of newly added software resources. User can input the start date and the end date to look up the number of software resource that have been updated. In the same time, User can click “trend chart” button to view the growth of the user, software resource, component, and others.

4.6.2 Resource Profile

Resource profile provides statistics information of components and services in the repository. Shown as below, There are three types of statistic information, which are the software resource category information, the resource in each detailed category and the resource price information.



Figure 23. Resource Profile of Software Resource Repository

information of resource category, information of resource detailed classification and the information of resource price.

4.6.3 Trustie Evaluation Information

There are some statistics of components and services in the Trustie evaluation information page. Following are the main parts.



Figure 24. Trustie Evaluation Information

4.7 My Resource Repository

Click “My Resource Repository” to enter personal software resource repository service module for registered user. This module includes “my published resource”, “downloaded resource”, “viewed resource”, “feedback on my published resources” and “my feedback”. This page is shown in the following figure.

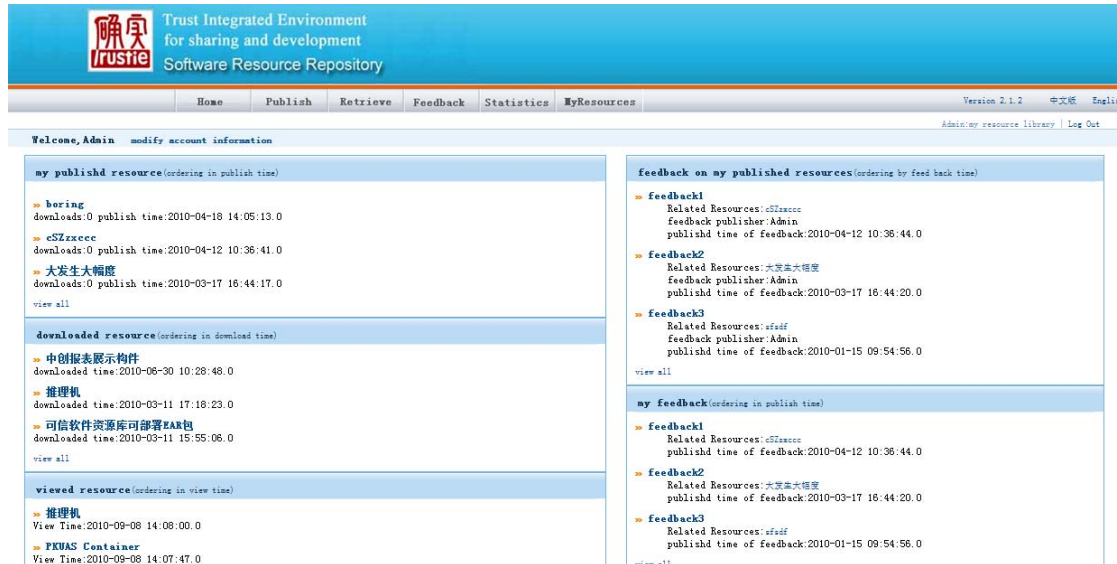


Figure 25. My Resource Repository

- My published resource: list the resources published by the logged-in user, ordering in publish time.
- Downloaded resource: list the resources downloaded by the logged-in user, ordering in download time.
- Viewed resource: list the resources viewed by the logged-in user, ordering in view time.
- Feedback on my published resources: list the feedbacks of the logged-in user's published resources, ordering in feedback publish time.
- My feedback: list the feedbacks published by the logged-in user, ordering in feedback publish time.

The functions above all have “view all” hyperlinks. Click “view all” to see all the resources related to the specific function.

4.8 Administrator Console

Administrator can manage the whole resource library. The account for administrator is “Admin” and the default password is “Admin”. Administrator can click “System management” to enter the administrator console after logging in. The page of the administrator console is shown in the following figure.

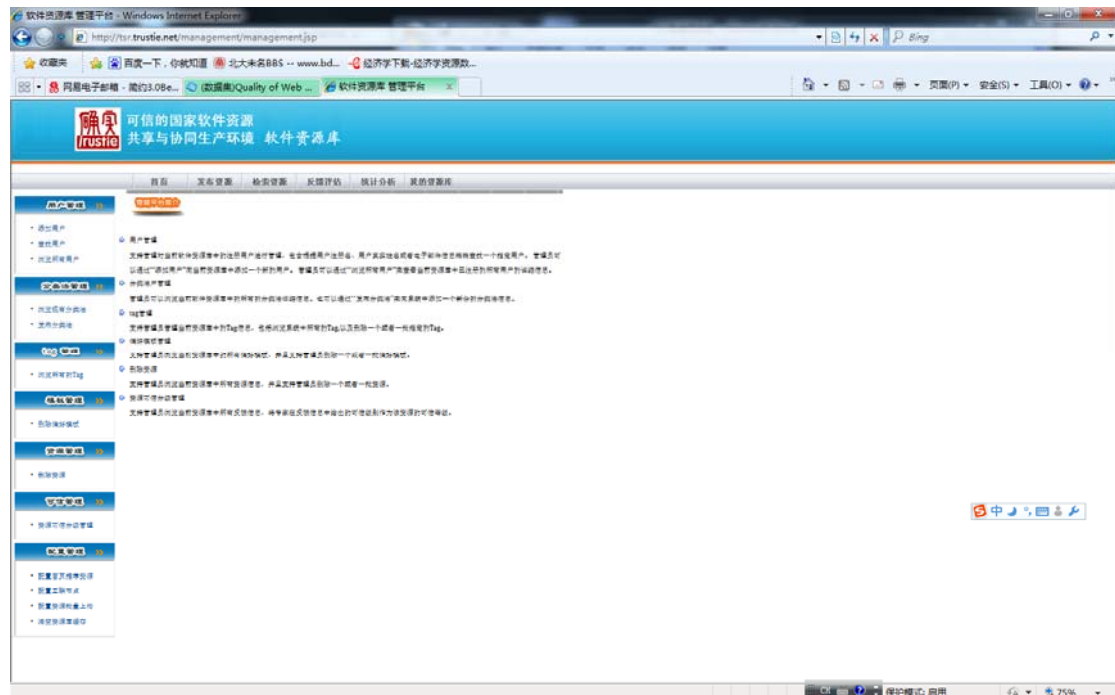


Figure 26. Administrator console

Administrator console has the following functions: “User Management”, “Taxonomy Management”, “Tag Management”, “Evaluation Template Management”, “Resource Management”, “Trustiness Management” and “Configuration Management”.

4.8.1 User Management

Through “User Management”, administrator could add a personal user account or a corporate user account. Besides, searching and viewing all the user accounts are available.

Administrator can disable a user account, which will ban the user from publishing resources. Meanwhile, administrator can also enable a disabled user account.



Figure 27. User Management

4.8.2 Taxonomy Management

4.8.2.1 Publish a new taxonomy

Administrator can view all the available taxonomies in TSR. Besides, administrator can publish a new taxonomy by click the button of “Publish Taxonomy”. The publish process is shown as follows:

Firstly, a name for the new taxonomy is necessary. This name will be set as the root of the new taxonomy. When a new node needs to be added, users can select a node as parent and click “add”. Then, the new added node will be the child of the node selected. Click “commit” after editing the new taxonomy to finish the taxonomy publishing process.

The following figure shows a taxonomy being edited.



Figure 28. Taxonomy Management

4.8.2.2 View Available Taxonomies

Click “View Available Taxonomies” in the administrator console. The page shown in the following figure will appear.

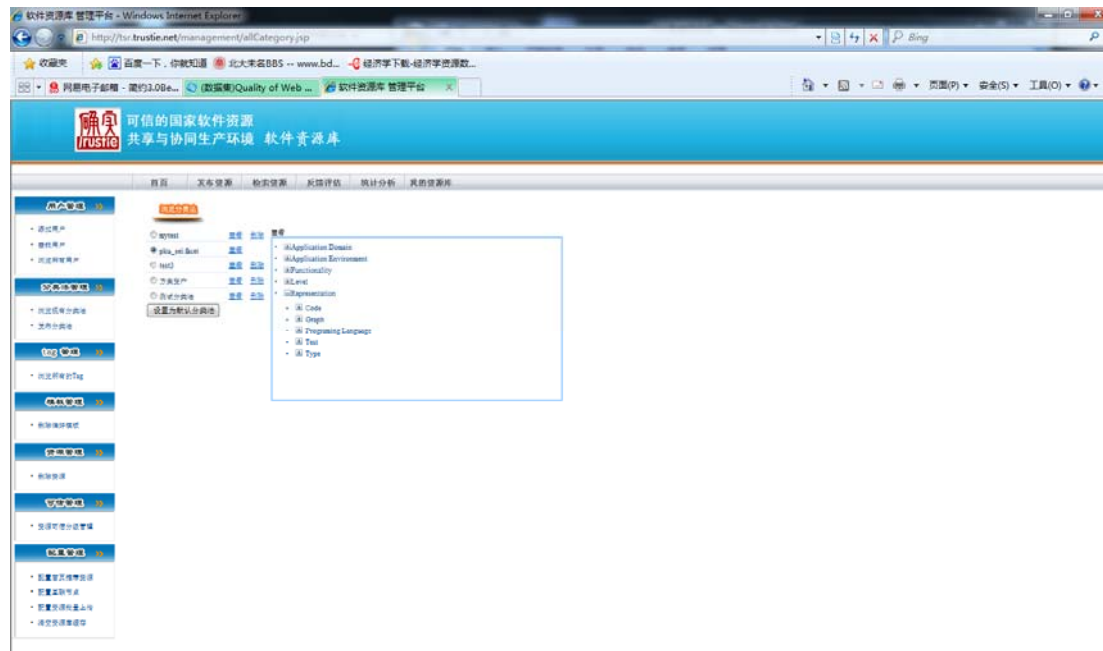


Figure 29. View Available Taxonomies

Select the taxonomy which needs to be used and click “Set as Default Taxonomy”. Default taxonomy will be shown in the left sidebar of the home page.



Figure 30. Taxonomy on homepage

4.8.3 Tag Management

Administrator can manage the tags added by users. Viewing all the tags and deleting an unnecessary tag is accessible to administrator.



Figure 33. Delete resource

4.8.6 Software Resource Trustworthiness Classification Management

Trustworthiness levels of the software resources in TSR are classified by experts. The configure method is .:

(1) **Configure experts list:** The configuration file named *ExpertsNameList.txt*, which is located at the directory *conf\tsrr_conf* of Jonas installation path, is used to configure the list of experts as shown in Figure 32. The administrator of TSR can add or delete any user of TSR into this file. Once a user's name is added to this configuration file, the user becomes an expert. When you configure the list, please note that (1) one user's name holds a line, (2) there is no punctuation among the names, and (3) the user must exist in TSR. E.g. see the Figure 33.



Figure 34. the path of the experts list configuration file



Figure 35. configure the experts list

(2) Trustworthiness classification: If any user in experts list adds feedbacks to a software resource, the administrator of TSR can see the feedback information by clicking “Software Resource Trustworthiness Classification Management”. For example, if the user named *Admin* has been added to the experts list, and adds feedbacks to two resources named “社区需求捕获模式” and “WebSphere Portal Widget Portlet”, the administrator of TSR will see the following page:



Figure 36. software resource trustworthiness classification management

The administrator of TSRR can select the resources to be classified, and click the button of “confirm the classification” to classify these resources. When users browse some software resources that have been classified, the software resource’s trustworthiness level classified by the experts will be shown on the web page as shown in Figure 35.

当前位置： 查看资源信息

基本信息			
名称	社区需求捕获模式	可信级别	三级 ★★ ★
资源类型	构件	发布者	hxzj_2
入库时间	2009-05-12 08:30:55.0	更新时间	2009-05-12 08:31:02.0
摘要	社区需求捕获模式		
费用	commercial	价格	
版本		参考	
目标环境		限制	
访问地址			
认证方法			
软件许可证			
UUID	27F206D0-3E8C-11DE-803F-DE2336E1FA15		

Figure 37. The trustworthiness level information of a software resource

4.8.7 Configure Recommended Resources in Home Page

“Recommended Resources in Home Page” refers to the resource list named “Recommended Resource” in the center of the home page.

The screenshot shows the home page of the Trust Integrated Environment Software Resource Repository. The page layout includes a top navigation bar, a left sidebar with 'User Login' and 'Taxonomy', a central search and tag area, and a right sidebar with 'Statistics' and 'download ranking'. The main content area features a 'Recommended Resource' section, which is highlighted with a red box. This section lists two resources: 'PKUAS Container' and '远程部署服务' (Remote Deployment Service). The 'PKUAS Container' resource is described as a Peking University Application Server (PKUAS) compliant J2EE application server, and the '远程部署服务' resource is described as a service for deploying applications to a remote server.

Figure 38. "Recommended Resource" in the home page

Click “Configure Recommended Resources” in the administrator console to enter the configuration page.

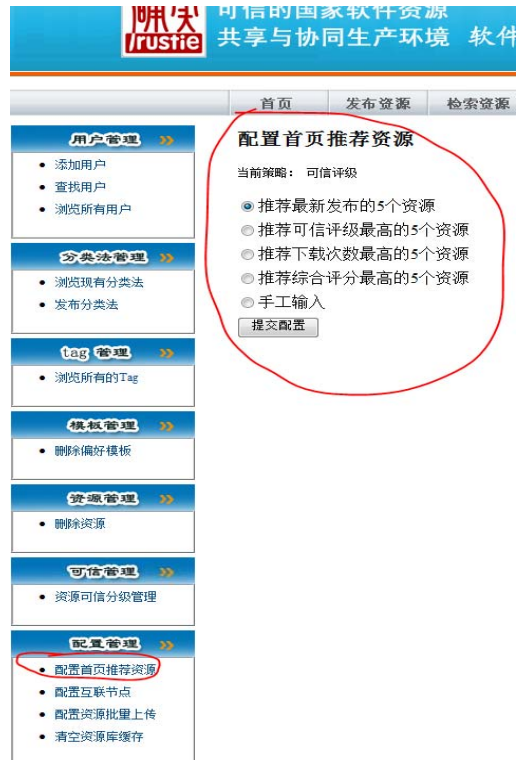


Figure 39. Configure “recommended resources”

There are five choices:

- Recommend top five newest published resources
System will show the top five newest published resources in the home page automatically,
- Recommend top five highest trustiness level resources
System will show the top five highest trustiness level resources in the home page automatically,
- Recommend top five most downloaded resources
System will show the top five most downloaded resources in the home page automatically,
- Recommend top five comprehensive ranked resources
System will show the top five comprehensive ranked resources in the home page automatically,
- Input manually

Administrator needs to input the resources to be shown in the “Recommended Resource” section. The following page will appear after selecting this option.

当前策略：可信评级

- ☐ 推荐最新发布的5个资源
- ☐ 推荐可信评级最高的5个资源
- ☐ 推荐下载次数最高的5个资源
- ☐ 推荐综合评分最高的5个资源

☒ 手工输入

请输入推荐资源的UUID Key值:

请输入推荐资源的UUID Key值:

请输入推荐资源的UUID Key值:

请输入推荐资源的UUID Key值:

请输入推荐资源的UUID Key值:

Figure 40. Configure “recommended resources” by input manually

Input the UUIDs of the recommended resources in the input boxes and then click “Commit Configuration” to finish. UUID of a resource could be accessible by the detail page of this resource, as shown in the following figure.

Trust Integrated Environment
for sharing and development
Software Resource Repository

[Home](#) | [Publish](#) | [Retrieve](#) | [Feedback](#) | [Statistics](#) | [MyResources](#) | Version 2.1.2 | [中文版](#) | [English](#)

Current Location: [view resource message](#)

basic information				classification tree:
Keywords	PKUAS Container	Trustiness Level	四级 ★★★★★	
Type	Component	publisher	maxj07	
date of being published	2009-05-21 07:21:42.0	updated time	2009-05-21 07:24:09.0	
Abstract	Peking University Application Server(PKUAS)是符合JEE5规范的J2EE应用服务器。EJB Container是其核心模块。容器Container是构件所处的环境，为构件提供直接的运行时支持。PKUAS Container为符合J2EE1.4/JEE1.5规范的EJB2.0及EJB3.0提供了运行环境，为国内外首个实现了...			
fee	open	Price	0	
Version	JO2nAS/JO2nAS 5	Reference	J2EE 1.4/1.5 Specification	
Target Environment	J2EE应用服务器	limitation	JDK1.5以上	
access address				
Authentication method	北京大学研制的“新型构件化应用服务器PKUAS”于2007年6月29日通过“新型构件化应用服务器”鉴定委员会进行的技术鉴定。			
Software License	LGPL			
UUID	FA117CE0-4594-11DE-8985-C582670E48AE			

the selected classification terms is the classification of the software resource

- [Application Domain](#)
- [Application Environment](#)
- [Functionality](#)
- [Level](#)
- [Representation](#)

Figure 41. UUID of a Software Resource

4.8.8 Repository Interconnection Configuration



Figure 42. Repository Interconnection Configuration

In this page, users can configure the name and the address of local resource repository so as to add new repository interconnection points. After this configuration, we can explore all repositories when search a software resource (jar, web service, etc.) The query page is shown as follows:



Figure 43. Universal software resource retrieval

4.8.9 Resource Batch Upload Configuration



Figure 44. Resource Batch Upload Configuration

A repository administrator can upload amount of software resource. These software resource are stored as their name are described in an excel file and their entities are put in a catalogue. In the same time, the administrator should set the user name and its password to publish these software resource.

4.8.10 Flush the Cache of the Resource Repository

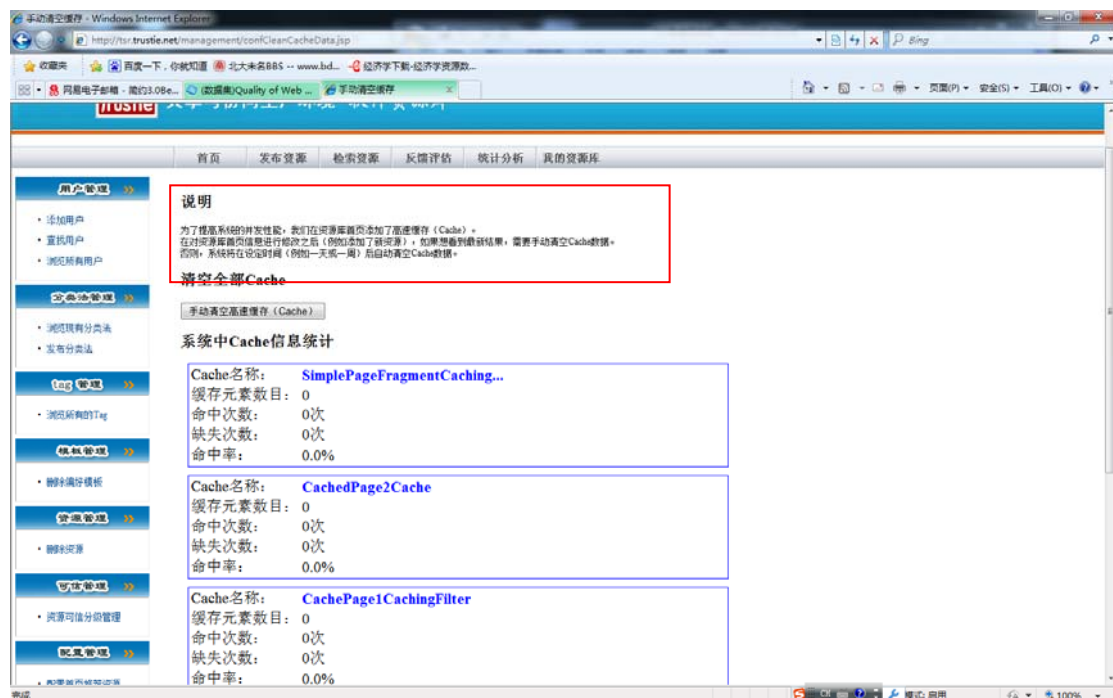


Figure 45. Flush the Cache of the Resource Repository

Only when administrator wants to see the latest result after changing the resource repository system(add some new recommend resources, etc.) shall he use this function. Otherwise, the system will clear the cache every few days.